



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,665	11/03/2006	Akiyoshi Itoh	3716645.00002	2489
24573	7590	09/29/2010	EXAMINER	
K&L Gates LLP P.O. Box 1135 CHICAGO, IL 60690			CHAU, LISA N	
			ART UNIT	PAPER NUMBER
			1785	
			NOTIFICATION DATE	DELIVERY MODE
			09/29/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

Office Action Summary	Application No. 10/599,665	Applicant(s) ITO ET AL.	
	Examiner Lisa Chau	Art Unit 1785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,8 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,8 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. Receipt is acknowledged of a request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e) and a submission, filed on 8/24/10.

Response to Amendment

2. Examiner acknowledges canceled Claims 1-3, 5-7, and 9-13, and amended Claims 4 and 14 in the response filed on 8/24/10.

Response to Arguments

3. Applicant's arguments filed 8/24/10 have been fully considered but they are not persuasive.

Applicants argue that while Nishida shows that forming a recording layer continually in the entire surface on the underlying layer, it is not shown that each recesses form the recesses which are discrete with respect to one another.

However, the Examiner respectfully disagrees. Any subsequent layers deposited over the patterned underlying layer (10) also have the patterned structure (recesses and protuberances) (Please see Fig. 4). Therefore, the amorphous magnetic film (11) would have the claimed protuberance and recesses.

35 U.S.C. 112, second paragraph rejection on Claim 14 is withdrawn.

Claim Rejections - 35 USC § 112

4. Claims 4, 8, and 14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an array of voids, does not reasonably

Art Unit: 1785

provide enablement for voids arrayed in an face-centered cubic lattice configuration.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

It is unclear on the final structure of the magnetic recording medium. The instant claims describe the underlying layer to have voids due to removing micelles that are self-arrayed in a face-centered cubic lattice configuration. Does this mean the voids are in each face and corner lattice of the unit cell of the crystal or are the voids arrayed in a 2D or 3D type of structure? Or is the underlying layer itself a face-centered cubic structure with voids in every corner lattice and face of the unit cell. Are the voids only on the surface or within the underlying layer?

The specification does not provide specific details to enable the instant claims. For the purpose of evaluating prior art, any underlying layer with an ordered array of voids meets the instant claims. Examiner notes that voids in the instant claims do not necessarily have to be within the underlying layer. That voids on the surface of the underlying layer (having a pattern) meets the instant claims as well.

Examiner notes that in the advisory action, Applicants still need to further clarify the final structure of the magnetic recording medium, especially regarding the underlying layer to have voids uniformly demonstrated in an fcc lattice configuration by using the physical mechanism of self organization phenomenon.

Further clarifications/corrections are required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5479382 ("Nishida et al.").

Nishida et al. teaches a magnetic recording medium comprising a substrate (9), a silicon oxide and a mixture thereof underlying layer (10) in which a large number of recesses of an extremely small size are uniformly demonstrated, and amorphous magnetic film (11) formed on the entire surface of the underlying layer (10) in which said recesses of the extremely small size are demonstrated and the protuberances are discrete with respect to one another (Figs. 4, Col. 7: Lines 56-63, Col. 23: Lines 52-56).

Nishida et al. teaches its silicon oxide and mixture thereof underlying layer (10) is uniformly arrayed with large number of spherically-shaped voids of the same size, with the diameter of several nm to tens of nm (Fig. 4 and Col. 23: Lines 52-56).

Furthermore, while Nishida et al. is silent on the teachings of its underlying layer (10) to be formed uniformly to a face-centered cubic structure, it is intrinsic that it is a face-centered cubic structure considering both Applicants and Nishida uses silicon oxide and a mixture thereof as its materials. In addition, while Nishida et al. is silent on the teachings of the self arrayed voids to be in a face-centered cubic lattice

Art Unit: 1785

configuration, one of ordinary skill in the art could arbitrarily draw lines between ordered voids to form a face-centered cubic lattice configuration in Nishida et al.

With regards to the limitations of the underlying layer (10) to be formed of tetraethoxysilane as a feedstock and the surface being processed and the micelles being formed of a F68 or F108 triblock copolymer, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5479382 (“Nishida et al.”) in view of *Handbook of Advanced Electronic and Photonic Materials and Devices, 2001, Pages 59-102* Frédéric Mazaleyrat, Richard Barrué (“Mazaleyrat et al.”).

With regards to Claim 14, Nishida et al. teaches a magnetic recording medium as set forth above, including the already disclosed amorphous magnetic film (11). Nishida et al. does not specifically teach amorphous magnetic films.

Art Unit: 1785

However, Nishida et al. teaches AuCo reflective layer (13) (Fig. 4 and Col. 23: Lines 65-66), but is silent on being an amorphous magnetic layer.

As evidenced provided by Mazaleyrat et al., Mazaleyrat et al. teaches AuCo is ferromagnetic and an amorphous alloy (Page 60: 3rd ¶ under History). Therefore, it is obvious to one of ordinary skill in the art at the time of the invention was made that Nishida AuCo film (13) is amorphous and magnetic since it is the same material described in Mazaleyrat et al.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Chau whose telephone number is (571)270-5496. The examiner can normally be reached on Monday-Friday 8:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on (571) 272 - 1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1785

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LC/
Lisa Chau

/Holly Rickman/
Primary Examiner, Art Unit 1785